FACT SHEET

National Air Toxics Assessment: Ethylene Oxide
Jackson, Missouri
July 2019

REGION 7: Iowa, Kansas, Missouri, Nebraska, and Nine Tribal Nations

INTRODUCTION

The National Air Toxics Assessment (NATA) is EPA's ongoing review of air toxics in the United States. EPA developed NATA as a screening tool for state, local and tribal air agencies. NATA's results help these agencies identify which pollutants, emission sources and places they may wish to study further to better understand any possible risks to public health from air toxics. NATA includes data for 180 pollutants in the United States.

State, local, and tribal agencies are involved in every step of the process, from quality assuring early drafts of information to the release of the final NATA.

NATA can't give precise exposures and risks for a specific person. Instead, NATA results are best applied to larger areas. The risk estimates assume a person in the area breathes the same level of emissions each year over a lifetime of approximately 70 years. It is important to note, NATA assumes that air toxics emissions and resulting exposure remain at the same level throughout that 70 years.

EPA uses NATA results to:

- Improve data in emission inventories;
- learn where to expand our air toxics monitoring network;
- help target risk reduction activities;
- identify pollutants and source types of greatest concern;
- help decide what other data to collect;
- better understand risks from air toxics; and,
- work with communities to design their own local assessment.

NATA results should *NOT* be used to:

- pinpoint specific risk values in small areas;
- characterize or compare risks at local levels (such as between neighborhoods);
- characterize or compare risks between states;
- examine trends from one NATA year to another;
- as the sole basis for risk reduction plans or regulations;
- control specific sources or pollutants; and,
- quantify benefits of reduced air toxics emissions.

EPA suggests you use NATA results cautiously. The uncertainty – and thus the accuracy – of the results varies by area and by pollutant. Often, more localized studies are needed to better characterize local-level risk.

Learn more about NATA limitations online. https://go.usa.gov/xPs8p

ETHYLENE OXIDE

Ethylene oxide is a flammable, colorless gas used to sterilize devices that can't be sterilized using steam, such as some medical and dental equipment. It is also a chemical intermediate in the production of antifreeze, textiles, detergents, polyurethane foam, solvents, medicine, adhesives, and other products. Relatively small amounts of ethylene oxide are used as a fumigant for spices.

Unlike other pollutants that EPA regulates, air toxics have no universal, predefined risk levels that clearly represent acceptable or unacceptable thresholds. However, EPA has

made case-specific determinations based on existing rules under the Clean Air Act. The agency sets an upper limit of acceptable risk at 100 in one million for lifetime cancer risk to the most exposed person.

For the 2014 NATA, EPA used new health-effects data for ethylene oxide. Studies of workers had shown that their exposures to ethylene oxide were associated with an increased risk of cancers of the white blood cells (the infection-fighting cells of the immune system). Studies also showed an increased risk of breast cancer in females.

Largely because of these changes, more areas show elevated risks driven by ethylene oxide in the 2014 NATA than in the 2011 NATA. This does not mean there is more of this compound in the air in these places than before. Even if emissions in an area are the same – or possibly even if they are lower – the new stricter health-effects level often means a higher risk estimate.

Learn more about ethylene oxide at: https://go.usa.gov/xPs8w.

JACKSON, MISSOURI

Following the August 2018 release of the 2014 NATA, EPA Region 7 and the Missouri Department of Natural Resources (MDNR) began working with Midwest Sterilization Corporation in Jackson, Missouri, to better understand their ethylene oxide emissions depicted by the new risk estimates.

The company sterilizes medical devices using ethylene oxide. EPA, MDNR and the facility worked together to verify emissions calculations and the risk modeling input parameters from these processes.

Midwest Sterilization also studied additional emission control options for their facility and after discussing them with the agencies decided to voluntarily implement new control technology to help further reduce ethylene oxide emissions.

The company, located at 1204 Lenco Avenue, was founded in 1984 and has operated at their current location since 1999.

NEXT STEPS

After the installation of new control technologies, EPA, MDNR and Midwest Sterilization will continue working together to evaluate the results.

EPA CONTACT INFORMATION

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